Steven Pagett

PhD Research Student

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Research Interests

- Fragmentation-coalescence processes
- Randomly interacting particles
- Random graphs
- Networks
- Martingales
- Lévy processes

Education

2013–Now **PhD in Mathematics,** *University of Bath,* Bath, *In Progress*
Fragmentation-Coalescence Processes: Theory and Applications
I study fragmentation-coalescence processes on both finite systems of particles and partitions of the natural numbers. My main questions concern the clusters that are formed over time by coalescence and broken down by fragmentation and I've used a variety of techniques to tackle such problems. This includes mean-field and self-averaging techniques to work with systems of particles to find out how such systems behave as their size tends to infinity, and combinatorial stochastic processes and excursion theory for me work on partitions to show how the block counting process behaves.

2009–2013 **MMath in Mathematics,** *University of Bath,* Bath, *First*
Awards: Bath BP Centurion Award (University award for academic excellence and contribution to the reputation, life and work of the University).

Publications

2016 **A phase transition in excursions from infinity of the "fast" fragmentation-coalescence process,** Andreas Kyprianou, Steven Pagett, Tim Rogers and Jason Schweinsberg. *To appear in the Annals of Probability*
arXiv:1602.05241

Submitted **Universality in a class of fragmentation-coalescence processes,** Andreas Kyprianou, Steven Pagett and Tim Rogers
arXiv:1504.03196

Employment

Teaching Assistant

As a teaching assistant I prepare and lead tutorials given to groups of undergraduate students. This also includes marking work and providing feedback both written and verbal

2013–2016 **First Semester** Probability − **Second Semester** Algebra
Second year probability focussing on the foundations of probability and stochastic processes, for example branching processes, and second year algebra focussing on ring theory.

2012–2013 **First Semester** Foundations − **Second Semester** Analysis
First year foundation of mathematics course, teaching the basics of mathematics to students in departments other than mathematics, and first year analysis, focussing on continuity of functions and differentiation.

Selected Talks & Posters

The fast fragmentation-coalescence process

May 2016	BUC3, CIMAT, Mexico
April 2016	UK Easter Probability Meeting, Lancaster, UK

Universality in a class of fragmentation-coalescence processes

January 2016	Dynamical Networks and Network Dynamics, ICMS, UK
July 2015	Stochastic Processes and their Applications 2015, Oxford, UK
June 2015	Graduate School Research Afternoon, Bath, UK

Coalescence and fragmentation in terrorist networks

April 2014	Postgraduate Seminar Series, Bath, UK
March 2014	CNCB Seminar, Bath, UK

Other Responsibilities

Treasurer

2015-2016 I was the treasurer for the University of Bath SIAM Student Chapter. Responsibilities included securing funding for our events, managing the annual budget and producing the Chapter's end of year report.

Academic Representative

2014-2016 I am one of the Academic Representatives for the mathematics postgraduate research students. This involves chairing meetings and working together with the department to ensure that students' concerns are heard and addressed.

Postgraduate Away Day

2015 I co-organised the postgraduate away days that took place in January and October. We invited several speakers to give talks to the students on a variety of subjects outside of their research, examples including: giving a good mathematics talk, and attending conferences for the first time. This also involved organising catering and social events, to allow students to interact with each other in less formal settings.

Skills

Programming Languages: MATLAB, Julia, R and C#
I have experience with these languages to perform statistical analysis and to simulate stochastic processes to help with my research.

References

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